IHP GmbH -
Leibniz Institute for High Performance Microelectronics/
Leibniz-Institut für innovative Mikroelektronik



Research Assistant / PhD position (m/f/d) for Hardware Design of Processing Platforms with AI acceleration on FPGA and ASIC

Job-ID: 31114/26 | Department: System Architecture | Working Time: 40h/week| Salary: as per tariff TV-L | Limitation: 2 years with option of extension | Entry Date: as soon as possible

IHP is an institute of the Leibniz Association and conducts research and development of silicon-based systems and ultra-high-frequency circuits and technologies including new materials. It develops innovative solutions for application areas such as wireless and broadband communication, security, medical technology, industry 4.0, automotive industry, and aerospace. IHP employs approximately 400 people. It operates a pilot line for technological developments and the preparation of high-speed circuits with 0.13/0.25 µm-SiGe-BiCMOS technologies, located in a 1500 m² cleanroom that meets the highest industrial nanotechnology requirements.

The position:
We are looking for a motivated researcher to join the System Architectures Department to work on designing a versatile processing platform that integrates a scalable RISC-V-based CPU subsystem with heterogeneous accelerators. The platform will offer a highly configurable compute basis supporting different edge processing use-cases — from constrained low-power systems to high-performance nodes — and will integrate digital signal processing alongside conventional and non-conventional AI accelerators exploring technology heterogeneity.
This position offers a deep insight into the design and prototyping of cutting edge hardware systems. It is anticipated, the candidate will work towards a PhD. Your detailed tasks will include:

- HDL design, verification, platform development and exploration
- Integration of periphery and accelerator interfaces with focus on AI acceleration
- FPGA prototyping on-premise and server-based FPGAs
- Flow development and maintenance for continuous integration and deployment of our IPs

Your qualifications:
You hold a Master's degree in Computer Science, Electrical Engineering, or a related field. You have strong knowledge of processor architecture and experience in RTL design with different HDLs and frameworks. Significant proficiency with FPGA prototyping is expected. Familiarity with accelerator interfaces, integration, and AI accelerator architectures is beneficial. Knowledge of and enthusiasm for flow-based design automation is a plus.

You will also be a strong team player. We are looking for a team member who can structure their own work and bring a well-organized and systematic approach to working with creative minds. You will be an ideal fit for this position if you have experimental, analytical, and problem-solving skills, very strong communication skills, and the ability to

quickly learn how to use the latest technical equipment, including various software. You must be fluent in English. German language skills are welcome. Further development of German language skills is expected and strongly encouraged, e.g. through in-house language courses and intensive courses.

Our Offer:
Conduct research in a challenging, multinational environment giving you excellent career opportunities. You will have the chance to establish international reputation at the edge of top-notch technologies.
It is important to us to support the individual career developments (e.g. conferences, advanced trainings) as well as the personal needs of our employees by offering flexible working hours and the possibility to work off-site. The compatibility of work and family is highly valued. More information about our scientific excellence and the working environment at IHP can be found on our website.
IHP is TOTAL E-QUALITY-certified for equal opportunities for women and men at work and actively pursues the equality of all gender and all groups of people. We promote the professional development of women and strongly encourage them to apply. Disabled applicants, qualified according to the above criteria, will be given preference over other candidates with equivalent relevant qualifications.

Further advantages:
30 days holiday | special annual payment | Company pension scheme (VBL) | Flexible working hours, also part-time (no core working hours) | Possibility to work up to 40 % independent of location according to company agreement | A wide range of further training opportunities in-house or within the framework of business trips | Discounted company ticket with monthly allowance of € 15,65 for various fare zones | Good transport connections, free parking at the institute | Structured induction and actively supported integration into the institute (welcome workshop, intercultural workshop, joint leisure activities)

Your application:
Have we sparked your interest? We look forward to receiving your application in German or English via our **online application form.**

For more information about the position, please contact Markus Ulbricht: career@ihp-microelectronics.com.